

INTERMOUNTAIN
INFESTATIONS NEEDING CONTROL

Calendar Year 1962

Prepared by U. S. Forest Service, Division of Timber Management

Ogden, Utah November 3, 1961

For presentation at Intermountain Forest Pest Action
Council Meeting, Boise, Idaho
November 16, 1961

ACCOMPLISHMENT REPORT

This year for the first time we are including with the report to the Council a brief summary of accomplishments in the pest control field during calendar year 1961. The purpose of this accomplishment summary is to provide the Council members and others with a means of relating the past year's recommendations to progress made. To some degree, also, the accomplishment summary provides an appraisal of the effectiveness of the overall program of pest control.

SUMMARY OF 1961 TREATING ACCOMPLISHMENTS

Mountain Pine Beetle

1. Wasatch National Forest (North Slope)

1960 project proposal was to treat 200,000 trees at a cost of \$870,000.

Insufficient funds for total treatment in 1961. 135,000 trees treated spring 1961 - cost \$590,000. 1961 fall survey showed 284,000 new attacks in need of treatment. This is about a 5:1 buildup ratio from the 65,000 untreated trees, indicating extremely abnormal conditions. Control area has been reduced to 75,000 acres from over 100,000 in original infestation. Will treat or log 32,000 trees under present contracts leaving 252,000 trees to be treated spring 1962.

2. Teton National Forest

1960 project proposal was to treat 15,000 trees on national forest at a cost of \$97,500. National Park Service submitted separate proposal for approximately the same number of trees.

Forest treated 18,493 trees with \$92,000 allotment. Park Service treated 17,392 trees on 3,300 acres at a cost of \$70,000. Survey under-ran number of trees to be treated by at least 50%. Buildup ratios as high as 10:1 from untreated trees resulted in nearly 50,000 new attacks on national forest to be treated next year. Grand Teton National Park infestations adjoining Forest Service area are estimated to contain 15,000 trees in need of treatment.

3. Summit Springs - Ashley National Forest

1960 project proposal was to treat 3,300 trees at a cost of \$23,100.

Spring evaluations did not detect the increasing trend resulting in a deferring of this project to treat other areas considered more threatening with limited funds available. However, high buildup ratios occurred and there are now 32,000 new attacks in this area needing treatment.

4. Lake Fork and Rock Creek - Ashley National Forest

1960 project proposal was to treat 4,900 trees at a cost of \$30,580.

Three areas treated, totaling 6,590 trees at a cost of \$50,260. Cooperative project with Bureau of Indian Affairs. Good control on two areas. Moon Lake area needs retreating - 1,450 new attacks.

5. Moody Creek - Targhee National Forest

1960 project proposal was to treat 3,200 trees at a cost of \$10,800.

2,983 trees treated for \$9,600 (some salvage logging). Control good on treated areas but adjoining area and other spots on Targhee National Forest which were endemic have now exploded into epidemics. There are now 15,550 new attacks in need of treatment on new areas.

6. North Canyon - Cache National Forest

1960 project proposal was to treat 1,250 trees at a cost of \$7,500.

Successfully controlled by combination logging-chemical treatment. Cost \$6,150. (Other areas on Cache National Forest now epidemic.)

7. Wood River - Sawtooth National Forest

1960 project proposal was to treat 90 trees at a cost of \$900.

Maintenance control. Appears to have prevented buildup.

Engelmann Spruce Beetle

8. Green River - Bridger National Forest

1960 project proposal was to treat 43,000 trees at a cost of \$544,000.

Project recently closed down because of weather. However, at least 75% of infested area was covered by chemical treatment at cost of \$397,000. Logging will continue this winter and followup treatment costing \$200,000 is estimated needed to complete control next summer.

9. Soapstone - Wasatch-Ashley-Unita National Forests

1960 project proposal was to treat 5,850 trees, stumps, etc., at a cost of \$21,000.

Only \$3,500 used to finish mopup work in several small areas. This formerly large infestation can now be considered controlled.

10. Dark Canyon - Manti-LaSal National Forest

1960 project proposal was to treat 1,000 trees at a cost of \$6,440.

Dropped as low priority after spring evaluations because of limitations of funds. Forest continued logging as control method although success is not yet assured. May need some followup treatment.

Others

11. Black Hills Beetle - Dixie National Forest

1960 project proposal was to treat 850 trees at a cost of \$21,550.

285 trees treated - cost \$16,000. Infestation at low ebb after a long period of intermittent treating (7 - 8 years) plus logging control. Appears now to be effectively controlled.

12. Tussock Moth - Town Creek - Boise National Forest

1960 project proposal was for \$6,320 to treat 1,200 acres.

1,200 acres treated to prevent excessive feeding on ponderosa pine seedlings. Followup treatment may be necessary if reinfestation occurs from outside of buffer strip.

13. Mistletoe - Broodhead Meadows - Wasatch National Forest

1960 project proposal was for \$5,000 to start a pilot test project.

No work done. Dropped as low priority. Funds needed for higher priority projects.

INTERMOUNTAIN
INFESTATIONS NEEDING CONTROL
Calendar Year 1962

MOUNTAIN PINE BEETLE

1. North Slope - Wasatch National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine on the north slope of the Uinta Mountains.

History - Suppression work was begun in 1958. Entire infested area never has been treated. Increases have been in untreated areas.

Present Infestation - Tremendous increase in 1961 infested trees in untreated and some treated areas. After 1961 fall treatment is completed there will remain 252,100 infested trees on 74,240 acres of which 1,280 acres with 9,200 trees are state owned and 2,560 acres with 48,620 trees are privately owned.

Control Recommended - Log where possible, burn standing and pile and burn before fire season. Chemically treat with contract and forest crews in remaining area. If finances will allow only a partial control job, treat a two-mile wide strip around the east, south and west sides of the infestation, then mop up area within when money is available.

Justification - The potential of this infestation is believed sufficient to spread to all of the contiguous lodgepole pine stands in northern Utah. The sawtimber volume in this area is estimated to be 3,330,000 MBM. At \$5.00 per M, stumpage values total 16.5 million dollars. There are 40 medium to small sawmills hiring 900 woods and mill workers dependent on this total resource. Only a few small operators are located in or near the major infestation. Recreational and scenic values are high.

Future Prospects - Even with full control some mopup will probably be necessary for at least two additional years. Under the "fireline" strategy, control may be needed for four or five additional years, depending upon the success of the "containment" method.

2. Provo River - Wasatch National Forest

Insect Responsible - Mountain pine beetle

Timber Infested - Lodgepole pine in the Provo and Weber River drainages.

History - From 1932 to 1935 this area hosted a serious infestation of this beetle. A high endemic population has existed for the past three or four years. Some sporadic treating has been done to protect important recreational areas but now with the explosive increase, the infestation has turned highly epidemic in many areas within the two important river drainages.

Present Infestation - Buildup ratios as high as 10:1 brought about a serious increase in the number of infested trees and area infested. A total of 30,000 trees are infested on about 14,840 acres, nearly all of which are on national forest lands. The infestation has moved across the drainage to the west side where the timber values are higher.

Control Recommended - Logging where possible, fell and peel and chemical spray. Timber access is fair to good and there are active sales nearby. May be some opportunity to log part of the infestation but the season is short. Estimated cost of control is \$222,000.

Justification - Immediately threatens all of the stand of 293 MMBM of lodgepole pine on the Kamas Ranger District. Stumpage values total \$1,465,000. Much of the present lodgepole pine cut on the Wasatch National Forest comes from this general area. Ultimately threatens the entire stand of northern Utah lodgepole pine as does the North Slope infestation. High recreation values in Provo Canyon with 500,000 visits annually, popular camping and picnic areas, and 450 summer homes.

Future Prospects - With help from logging full scale control should reduce this infestation to less than two-thirds present size. One additional year of treatment should eliminate further need for control.

3. Summit Springs - Ashley National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine on the eastern end of the north slope of the Uinta Mountains, about twenty miles east of the Wasatch North slope infestation.

History - Recommended for control in 1960 but spring evaluations indicated doubtful need for control. Normal mortality was not realized, however, and many more trees were infested in 1961 than anticipated. No previous control history.

Present Infestation - Contains approximately ten times the number of trees infested last year. There are 32,000 trees on 8,000 acres. Epicenters are moving westward toward Wasatch infestation.

Control Recommended - Chemical spray. Tree size and distance from manufacturing point make logging impractical at present time. Estimated cost of control is \$240,000.

Justification - A total of 80 MMHM immediately threatened on the Manila Ranger District. Of particular import would be the expected coalescence of this infestation with the Wasatch outbreak if suppression is not effected. Ultimately threatened, if not controlled, would be all of the 3.3 billion board feet of lodgepole pine on the Ashley, Uinta, and Wasatch National Forests valued at 16.5 million dollars. Located near Flaming Gorge recreation area.

Future Prospects - Complete treating in 1962 should contain the present threat although some mopup may be needed in the succeeding year. Until harvesting of timber can reach this area, some local control may be required to keep another outbreak from occurring.

4. Moon Lake - Ashley National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine and ponderosa pine around Moon Lake in the Lake Fork drainage outside of the High Uintas Primitive Area on the south slope of the Uintas on national forest and Indian lands.

History - This and two adjoining areas were treated in 1961. Excellent suppression was obtained on the two adjoining areas including the Indian lands but the infestation persists in the Moon Lake area, possibly fed from the large Oweep infestation farther up the drainage.

Present Infestation - There are 1,450 trees infested on 500 acres on the national forest. This infestation is possibly an extension of the heavy Oweep Creek outbreak mentioned above which is within the High Uintas Primitive Area although the two outbreaks are separated by several miles of noninfested or very lightly infested timber. A new center of infestation which has developed on Indian lands near the area treated last year contains 300 infested trees on a small but concentrated area.

Control Recommended - Treat with chemical spray. Logging not feasible because of access.

Justification - Suppression is necessary to protect the remainder of the commercial lodgepole along the south slope of the Uinta Mountains. This inventory is valued at about \$400,000. An uncontrolled infestation expanding from this area ultimately threatens the entire 3.3 billion board feet of lodgepole pine on the Uinta Mountains. The infestation on Indian lands adjoins a large stand of valuable mature ponderosa pine which in turn is contiguous to areas of lodgepole pine and, therefore, constitutes a "feedback" threat to the same huge area of lodgepole pine surrounding the Uinta Mountains.

Future Prospects - Suppression of this infestation would not be expected to be permanent as long as the Oweep outbreak continues. However, it is probably the most economical means of protecting the commercial south slope stands. The spread potential from this infestation, however, is considered greater because of topography and susceptibility to expansion due to canyon mouth crosswinds. Mopup operations on a reduced scale may have to be continued until the Oweep infestation subsides.

5. Yellowstone-Hell's Canyon - Ashley National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine on the south side of the Uinta Mountains within the Yellowstone drainage.

History - The lodgepole pine stands in lower Yellowstone Creek have supported a high endemic population of mountain pine beetles for the past several years. This population, however, has not been aggressive and losses have remained fairly constant. Control has not been recommended previously for this infestation.

Present Infestation - The 1961 population changed from low level, rather consistent small losses to a full blown epidemic with at least 5,000 trees on 1,000 acres. Biological evaluations indicate this population has a greater potential to increase and spread than is indicated by the number of trees.

Control Recommended - Chemical treatment. Not accessible for logging.

Justification - This infestation is one of several epicenters located along the lower slopes on the south side of the Uinta Mountains. It is about 8 miles east of the Moon Lake outbreak. It has the same potential to infest the 80,000 MBM on the south side of the Uintas and 3.3 billion on the entire Uinta Mountains.

Future Prospects A single year of control covering the entire area should "break the back" of this infestation. However, because of the scattered nature of the infested trees on the outer fringe and the susceptibility of the stand, the suppression effort will probably need to be followed by mopup work for a year or two.

6. Miners Gulch - Ashley National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine on the south side of the Uinta Mountains in the Rock Creek Drainage.

History - This infestation has been in existence for five years or more in a rather limited area of about 100 acres. It has almost completely killed all the lodgepole in this small stand. However, in 1961 the infestation moved into the lodgepole further up the drainage.

Present Infestation - There are about 2,000 trees currently infested on less than 100 acres in a fringe of mature lodgepole around an old logging area in the main drainage.

Control Recommended - Chemical treatment. Trees are too scattered to make logging practical.

Justification - This infestation threatens to move not only up the drainage to eventually join with the Oweep infestation but also down the drainage into a valuable stand of ponderosa pine. If it moves up the drainage it will be in a roadless area of difficult access and then into the Primitive area. If it moves into the ponderosa pine, logging control may become more feasible but losses will be more serious.

Future Prospects - A single year's control work covering all of the infested area should effectively suppress this infestation.

7. Oweep Creek - Ashley National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine on the south side of the Uinta Mountains. Specifically the Oweep Creek and Lake Fork drainages within the High Uinta's Primitive Area.

History - The Oweep infestation has been in existence for several years. It has been relatively concentrated but a gradual buildup and extension has been noted for the past two years with some spotting beyond the main boundary.

Present Infestation - At least 30,000 trees on 5,000 acres are infested. Much of the stand around the center of the infestation has been killed in the past two or three years. Currently infested trees occur in large groups with about 90% of the trees in these concentrations now attacked. There is undoubtedly some flight out of this outbreak and it is possibly "feeding" the Moon Lake infestation several miles down the drainage.

Control Recommended - Chemical treatment or pile and burn. Trees cannot be logged within the primitive area. Cost is estimated at \$300,000.

Justification - This infestation is a large population reservoir with the potential to spread both inside and outside the primitive area. It is an immediate threat to the extensive area of lodgepole pine on the south slope of the Uinta Mountains and a potential threat to the entire 3.3 billion board feet of lodgepole pine on and around the Uinta Mountains.

Future Prospects - This infestation will probably require at least two to three years of control before suppression can be expected. Poor access will make it difficult to cover the infestation in a single year. Without treatment the area can be expected to expand further into the primitive area and eventually into areas outside.

8. North Teton - Teton National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine north of Jackson, Wyoming, within and east of Grand Teton National Park.

History - The Teton National Forest and Grand Teton National Park have experienced a series of mountain pine beetle outbreaks since about 1947. The present infestations began about 1958 and since then have gradually increased in severity. Both national park and national forest lands are involved and threatened by the present infestation. National park personnel have treated hot spots since 1955 but the infestation has continued to build. Approximately 18,000 trees were treated on national park land in 1961 and a like number were treated on national forest land.

Present Infestation - In the national forest area there are 48,800 lodgepole pine trees presently infested on about 5,300 acres. Four separate but relatively close areas are involved - Blackrock, Spread Creek, Ditch Creek, and Antelope Mountain. Pacific and Pilgrim Creeks to the north contain some infestation on national forest land which is an extension of the infestation on national park lands. The Spread Creek areas adjoin the Signal Mountain areas on the Grand Teton National Park. On the national park areas there are 15,000 trees needing treatment on 8,400 acres.

Control Recommended - Chemical treatment at the cost of about \$5.00 per tree or \$259,000 for national forest and \$75,000 for national park treating.

Justification - This infestation is extremely virulent and threatens to kill all of the timber in the immediate drainages within a few years. Some two hundred million board feet of mature lodgepole with a stumpage value of \$1,000,000 are likely to be killed unless it is controlled. Ultimately threatens all of the commercial lodgepole pine on the Teton National Forest, two and one-half billion board feet valued at \$12,500,000 as well as wilderness area stands. High recreational and scenic values on the Grand Teton National Park are immediately threatened. The Teton National Forest provides some of the timber background for the scenic areas of Grand Teton and Yellowstone National Parks. The town of Jackson, the national parks and the many tourist facilities within the Jackson Hole area are dependent on the scenic attractions of this world famous area.

Future Prospects - The tremendous increases in numbers of infested trees which occurred this year indicate the dangerous potential of this infestation. Increases of over 10 to 1 occurred this year in spite of treatment on some areas. An infestation with this potential is not likely to be controlled in a single year. More than likely two or three years of intensive followup work will be required to suppress this epidemic.

9. South Teton - Teton National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine in scattered areas on the southern half of the Teton National Forest in the Hoback River drainage.

History - This area has carried some infestation for several years. Suppression has been done on some areas each year since 1957. Susceptible type is more restricted than in the northern part of the forest, however, there are still sizeable areas of over type.

Present Infestation - There are estimated to be 1600 trees on 410 acres on the southern half of this forest.

Control Recommended - Chemical treatment. Infested groups are too scattered for practical logging. Estimated cost is \$7,300.

Justification - A total of 40 MM bd. ft. is immediately threatened and 2.5 billion board feet could eventually be killed if this infestation was allowed to expand.

Future Prospects - Areas properly treated for a single year should be satisfactorily suppressed. However, there are several areas where the infestation is below the treatable limits but building. These areas may need followup treatment. The present infestation is not located in the best commercial stands; yet, if allowed to expand without control, it could eventually reach more extensive merchantable stands on both the Teton and the Bridger National Forests.

10. Targhee - Targhee National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine in the Island Park, Felt and Moody Creek area on the eastern part of the Targhee National Forest.

History - These areas have had fluctuating levels of infestation for several years. Some treatment has been done in nearby areas. Several of these infestations adjoin state or privately owned lodgepole pine stands. Private owners have shown little interest in suppressing the infestation on their lands. Some logging and cooperatively chemical control on state and Bureau of Land Management lands has helped to retard the spread.

Present Infestation - There are 15,000 trees infested on 7,500 acres in four different areas. Some additional trees are infested on lands of other ownerships.

Control Recommended - Logging of infested trees plus chemical treatment of scattered and unmerchantable trees. Chemical control is estimated to cost \$88,900.

Justification - Suppression of these infestations will protect against spread into the lodgepole pine on the eastern section of the Targhee National Forest and the Yellowstone and Grand Teton National Parks. Timber worth \$1,840,000 (245 MM) is immediately threatened and 2-1/4 billion board feet worth 17 million dollars is ultimately threatened.

Future Prospects - The areas of infestation on national forest land should be relatively easily suppressed with a single year's treatment by coordinated logging and chemical control, although some mopup work may be needed. The unknown factor which might disrupt suppression work is the amount of reinfestation from untreated private lands outside the national forest boundary.

11. Skinner-Co-op - Cache National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine in the Sherman Peak area west of Neunan on the northern portion of the Cache National Forest.

History - New infestation. An infestation in the drainage south of the present infestation was treated and controlled last year.

Present Infestation - There are estimated to be 1,500 trees on 200 acres.

Control Recommended - Chemical control. Infested trees are not accessible for logging.

Justification - Suppression will protect 600 MBM with a stumpage value of \$4,800. Ultimately 2,000 MBM worth \$16,000 on the north end of the Cache National Forest could be infested by this outbreak. Small area but of economic value locally.

Future Prospects - It is expected that a single year's treatment will provide adequate control.

12. McCall - Payette National Forest

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine southwest of McCall, Idaho, on private land.

History - New infestation. Probably has built to epidemic proportions in the past two to three years.

Present Infestation - It is estimated that there are now 5,500 trees on 1,280 acres.

Control Recommended - Logging or chemical spray.

Justification - This is an immediate concern of private landowners in the vicinity. The Forest Service can assist to the extent of 25% of the cost. Could spread to 400 MM bd. ft. of lodgepole pine in vicinity. There is also a distinct possibility that this infestation could eventually move into ponderosa pine stands in the vicinity.

Future Prospects - Without control it is likely that the infestation will become much wider spread and be far more costly to control.

13. Minor Projects

Insect Responsible - Mountain pine beetle.

Timber Infested - Lodgepole pine and ponderosa pine on several national forests.

History - All new infestations. Recent buildups in spots that have been endemic for varying periods.

Present Infestation - New infestations on the Cache, Caribou, Ashley, Sawtooth and Payette National Forests. Some were located too late to make biological evaluations but because of the general upward trend of mountain pine beetle activity some are certain to have serious potential.

Control Recommended - Logging and chemical control of approximately 9,000 trees on widely scattered areas. Expected cost - \$45,000.

Justification - These areas will be evaluated by spring. With the dangerous potential shown by most of the mountain pine beetle infestations in the region, it can be expected that most if not all of these small new infestations will require treatment. Many thousands of acres of commercial stands are endangered by these small epidemics.

Future Prospects - Areas which receive treatment at this stage should be suppressed in a single year with only incidental mopup needed.

14. Monticello - Manti-LaSal National Forest

Insect Responsible - Engelmann spruce beetle.

Timber Infested - Engelmann spruce in the area west of Monticello, Utah.

History - A new infestation.

Present Infestation - About 1,000 trees are estimated to be infested on 680 acres. Estimate based on aerial and casual ground observations as it was impossible to cover this area this fall with a proper evaluation.

Control Recommended - Logging where possible followed by chemical treatment of unmerchantable logs, trees and logging residue. Estimated cost - \$9,200.

Justification - The Engelmann spruce beetle has such a dangerous potential for rapid increase, that immediate action is advisable wherever there is evidence of rapid buildup. Immediately threatened are 2,853 MFM valued at \$24,250. Without control a total of 41 MFM valued at \$350,000 could be lost to the insects.

Future Prospects - The spruce beetle prefers down logs. If logging can be started and followed by some chemical control, this infestation should be controlled easily. It is quite possible that two or three years may be needed to complete the required logging and incidental followup treatment.

15. Green River - Bridger National Forest

Insect Responsible - Engelmann spruce beetle.

Timber Infested - Engelmann spruce on the upper Green River.

History - This infestation was first found in 1957. Logging has been tried as the primary control method until last year but cutting has lagged behind the advancing infestation. In the fall of 1961 full scale chemical control covered most of the area of infestation. Because of summer fires and snows early in the fall the control season was restricted and it was not possible to complete all treating planned, however, the major part of the infestation was covered.

Present Infestation - There are still some currently infested trees in the area treated in 1961. Because of the short season, hibernators only were treated on much of the area since the population would emerge next spring. This year's brood was not completely treated. It is hoped to remove many of the new attacks by logging this winter and next spring. It is estimated that a cleanup job next fall will require treatment of as many as 10,000 trees, stumps and cull parts.

Control Recommended - Log where possible and chemically treat the remainder. Estimated cost - \$110,000.

Justification - With one more treating season the infestation which received treatment in 1961 should be completely controlled. Without further work in this area the investment to date is likely to be lost. There are 180 MMBM (stumpage value \$1,080,000) immediately threatened and 4,250 MMBM (stumpage value \$34,000,000) which could ultimately be killed if the outbreak is allowed to grow and spread.

Future Prospects - The infestation within the green stand should be logged or chemically controlled to halt the spread of the infestation. Until the entire population can be brought to endemic levels there is still a persistent danger.

16. Spruce Budworm - Salmon, Targhee, Challis, Payette and Boise National Forests

Insect Responsible - Spruce budworm.

Timber Infested - Douglas-fir and true fir in the southern Idaho area on and near Salmon, Challis, Targhee, Payette and Sawtooth National Forests.

History - Three years of control of the budworm ended in 1957. Since that time some population has persisted with conditions favorable for buildup the last two years. This population has now developed to the point where tree mortality is imminent.

Present Infestation - Damage increased in 1961 so that tree mortality is inevitable within one year or two at the most if the population continues at its present level. There are 1,422,000 acres presently infested. Not all of this area will suffer tree mortality for some stands are more heavily infested than others.

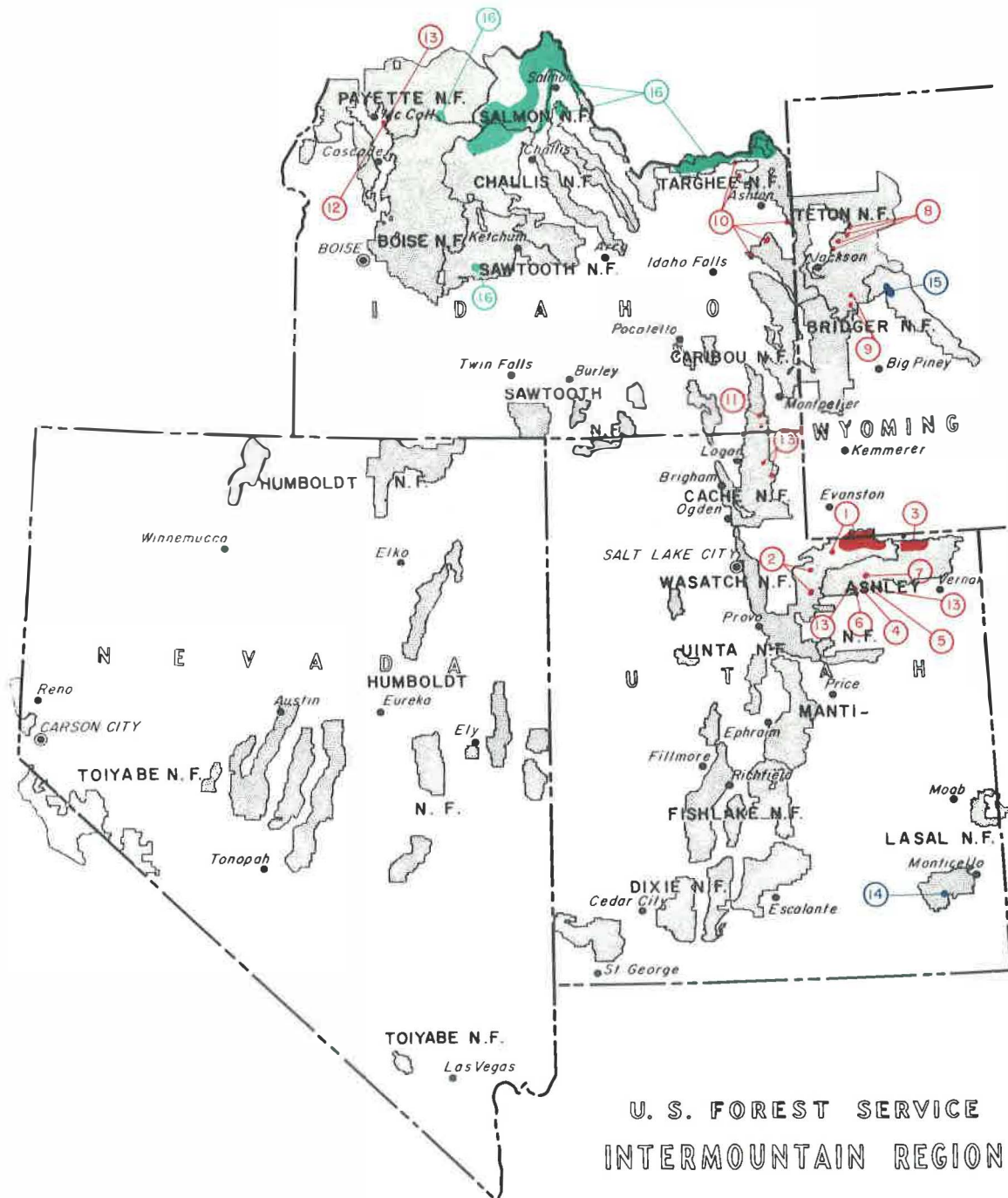
Control Recommended - Aerial application of DDT spray. If the entire infestation cannot be sprayed it is probable that stage control can be started next year by treating 352,000 acres on the Salmon and Targhee National Forests without serious danger of reinfestation from untreated areas. Cost of treatment of the smaller area would be \$400,000. Treating the entire infestation would cost \$1,422,000.

Justification - There are 5,280 MMHM of Douglas fir and true fir on these five forests which is in some danger of being killed in the next few years with 21,000 MMHM ultimately threatened. There is little hope of natural control in time to prevent losses in the mature Douglas-fir stands.

Future Prospects - Past control on the Payette and Boise National Forests has proved to be very effective and most areas previously treated have not required retreatment. It is not at all likely that this infestation will subside without treatment.

REGION 4 INSECT CONTROL RECOMMENDATION C. Y. 1962

- | | | |
|--|--------------------------------------|---|
| 1. North Slope Wasatch Mountain Pine Beetle | 6. Miners Gulch Mountain Pine Beetle | 11. Skinner Co-op Mountain Pine Beetle |
| 2. Provo River Mountain Pine Beetle | 7. Oweep Creek Mountain Pine Beetle | 12. McCall Mountain Pine Beetle |
| 3. Summit Springs Mountain Pine Beetle | 8. North Teton Mountain Pine Beetle | 13. Minor Mountain Pine Beetle Projects |
| 4. Moon Lake Mountain Pine Beetle | 9. South Teton Mountain Pine Beetle | 14. Monticello Engelmann Spruce Beetle |
| 5. Yellowstone-Hell's Canyon Mt. Pine Beetle | 10. Targhee Mountain Pine Beetle | 15. Green River Engelmann Spruce Beetle |
| | | 16. Spruce Budworm |



U. S. FOREST SERVICE
INTERMOUNTAIN REGION